TECHNICAL BASIS FOR TIER I OPERATING PERMIT

DATE: September 16, 2002

PERMIT WRITER: Zach Q. Klotovich

PERMIT COORDINATOR: Bill Rogers

SUBJECT: *TECHNICAL MEMORANDUM FOR TIER I OPERATING PERMIT*
AIRS Facility No. 003-0001, Tamarack Mills, New Meadows
Final Tier I Operating Permit

Permittee:	Tamarack Mills, LLC d.b.a. Evergreen Forests and Tamarack Energy Partnership
Permit Number:	003-00001
Air Quality Control Region:	63
AIRS Facility Classification:	A
Standard Industrial Classification:	2421
Zone:	11
UTM Coordinates (km):	548.5, 4977.9
Facility Mailing Address:	Drawer H, New Meadows, ID 83654
County:	Adams
Facility Contact Name and Title:	Gary Bender, Mill Manager
Contact Phone Number:	(208) 347-2111 ext. 228
Responsible Official Name and Title:	Robert Krogh, President
Exact plant Location:	Hwy. 95, six miles SW of New Meadows, Idaho
General Nature of Business & Kinds of Products:	Sawmill and electrical cogeneration

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LIST OF ACRONYMS

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
CO	carbon monoxide
DEQ	Idaho Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HAPs	hazardous air pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pound per hour
MACT	Maximum Available Control Technology
MMBtu	million British thermal units
NESHAP	Nation Emission Standards for Hazardous Air Pollutants
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter of 10 micrometers or less
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
SIC	Standard Industrial Code
SIP	State Implementation Plan
SO_2	sulfur dioxide
T/yr	tons per year
VOC	volatile organic compound

PUBLIC COMMENT / AFFECTED STATES / EPA REVIEW

Summary

A 30-day public comment period for the Tamarack Mills draft Tier I operating permit was held from February 14 to March 20, 2002, in accordance with IDAPA 58.01.01.364 (*Rules for the Control of Air Pollution in Idaho*).

IDAPA 58.01.01.008.01, defines *affected states* as: "All states: whose air quality may be affected by the emissions of the Tier I source and that are contiguous to Idaho; or that are within fifty (50) miles of the Tier I source."

A review of the site location information included in the permit application indicates that the facility is located within 50 miles of a state border. Therefore, the state of Oregon was provided an opportunity to comment on the draft Tier I operating permit.

Summary of Comments

No comments were received from any affected state or the general public.

A comment was received from Tamarack Mills. The facility requested that the requirements for the planer and drying kilns be tolled because those units are currently shut down. The permit was amended to include a note that the requirements for the planer and drying kilns are not applicable until the units are restarted. Tamarack Mills is required to notify DEQ, in writing, within five days of restarting the units.

A hearing was held on March 19, 2002 in Council, Idaho.

1. PURPOSE

The purpose of this memorandum is to explain the legal and factual basis for this draft Tier I operating permit in accordance with IDAPA 58.01.01.362, *Rules for the Control of Air Pollution in Idaho (Rules).*

The DEQ has reviewed the information provided by Tamarack Mills, LLC dba Evergreen Forests and Tamarack Energy Partnership (Tamarack) regarding the operation of the Evergreen Forests and Tamarack Energy Partnership facility located near New Meadows, Idaho. This information was submitted based on the requirements to submit a Tier I operating permit in accordance with IDAPA 58.01.01.300.

2. SUMMARY OF EVENTS

On June 21, 1995, DEQ received the Tier I operating permit application from Tamarack for its Evergreen Forests and Tamarack Energy Partnership facility. On August 24, 1995, DEQ sent Tamarack an incompleteness letter. DEQ received a response to the incompleteness letter on November 13, 1995. The application was declared administratively complete on January 12, 1996.

On July 31, 1998, DEQ sent Tamarack a request to update the Tier I application as a result of changes to the *Rules.* On September 21, 1998, DEQ received an application update. On September 30, 1998, DEQ sent Tamarack a request to clarify the responsible official because the recognized responsible official did not certify the application update. On October 27, 1998, DEQ received a letter from Tamarack stating that the responsible officials are Todd M. Hitchcock and Robert T. Hitchcock. The letter also acknowledged a change in the facility name to Tamarack Mills, LLC dba Evergreen Forests and Tamarack Energy Partnership. On November 20, 1998, DEQ sent Tamarack a letter requesting responsible official identity clarification for the controlling entity of Tamarack Mills, LLC dba Evergreen Forests and Tamarack Energy Partnership. The letter also asked Tamarack to request that DEQ reissue the existing permits under the new name. On December 24, 1998, DEQ received a request for an administrative permit amendment from Tamarack to change the name on the Tier I operating permit application to Tamarack Mills, LLC dba Evergreen Forests and Tamarack Energy Partnership. On October 4, 2001, DEQ sent Tamarack Mills the 2001 air quality inspection report, which found compliance to be pending for several emission units because of failure to obtain permits to construct (PTCs). On October 16, 2001, an activation letter was sent to Tamarack Mills that notified the facility of DEQ's projected schedule for issuance of the permit. The application was declared technically complete on October 23, 2001. However, the October 23, 2001, letter also requested the application be updated by November 5, 2001, to reflect the current compliance status. On October 31, 2001, DEQ received a response from Tamarack Mills requesting an open-ended extension in time to respond to the request. The October 31st letter also included documentation of an ownership change. Mr. Robert Krogh purchased Tamarack Mills on July 31, 1998. Mr. Krogh authorized Gary Bender to serve as a responsible official for Tamarack Mills.

On December 3, 2001, DEQ sent Tamarack Mills a draft copy of the permit and technical memorandum for a 10-day facility review. The permit was received by Tamarack on December 6, 2001. No comments were received from the facility. The permit, technical memorandum, and application were made available for public comment from February 14 to March 20, 2002. One comment was received from the facility is addressed in the public comment section above. A public hearing was held in Council, Idaho on March 19, 2002.

On July 26, 2002, new compliance schedule language was incorporated into the permit to address those sources that required but did not receive a PTC prior to construction or modification. The new incorporates PTC requirements, including PSD requirements if applicable, as opposed to deferring to the DEQ's Tier II permitting authority to handle PTC/PSD issues. The permit was then sent back to EPA Region 10 for another 45-day review period.

3. BASIS OF THE ANALYSIS

The following documents were relied upon in preparing this memorandum and the Tier I operating permit:

- Tier I operating permit application, received June 21, 1995; and supplemental application materials received on September 21, 1998
- Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, January 1995, Office of Air Quality Planning and Standards, United States Environmental Protection Agency
- Guidance developed by the EPA and DEQ
- Title V permits issued by other jurisdictions
- Documents and procedures developed in the Title V Pilot Operating Permit Program

4. FACILITY DESCRIPTION

4.1. General Process Description

Evergreen Forests is a sawmill, lumber-drying, and planing facility in Adams County, Idaho. Tamarack Energy Partnership is a cogeneration facility associated with the sawmill.

The sawmill processes logs into dry dimensional lumber. Logs processed in 1995 were 52% ponderosa pine, 31% fir and larch, 8% white fir and 9% mixed spruce, lodge pole, and alpine fir. All lumber produced is dried in the kilns and finished in the planer.

The Tamarack Energy Partnership facility is a topping cycle cogeneration facility. The facility burns wood waste produced by the Evergreen Forests sawmill to produce steam in a water wall boiler. Steam is piped to a turbine where it drives a generator. Part of the steam is extracted from the turbine and piped to lumber drying kilns where it is condensed to a liquid state prior to being pumped back to the boiler. The Tamarack Energy facility sells electrical energy and capacity to Idaho Power Company.

A detailed process description was provided by Tamarack on pages 1-8 of the application.

4.2. Facility Classification

The facility is classified as a major facility, in accordance with IDAPA 58.01.01.008.10, for Tier I permitting purposes because the facility emits or has the potential to emit a regulated air pollutant in amounts greater than or equal to 100 T/yr. The facility is also major as defined in IDAPA 58.01.01.006.55, and is subject to PSD permitting requirements because the facility's emits or has the potential to emit a regulated air pollutant in amounts greater than or equal to 250 T/yr. The AIRS/AFS facility classification is A. The facility is not a designated facility as defined in IDAPA 58.01.01.006.27. This SIC defining the facility is 2421.

4.3. Area Classification

The facility is located within AQCR 63 and UTM Zone 12. The facility is located in Adams County, which is designated unclassifiable for all federal and state criteria air pollutants. There are no Class I areas within 10 km of the facility.

4.4. Permitting History

September 1, 1980	Operating Permit No. 13-0040-0001-00 was issued to Evergreen Forest Products. The permit cover letter states that the permit governs the operations of the sawmill. However, the only emission units included in the permit are a conical wood waste incinerator and three wood-fired boilers, none of which currently exist at the facility.

December 30, 1982	A letter was issued to Tamarack Energy that serves as the permit to construct for the "wood residue-fired cogeneration unit". The only emission limits in the permit are 20% opacity and the grain-loading standard for fuel-burning equipment (0.08 grains per dry cubic foot of effluent gas corrected to 8% oxygen).
October 31, 1996	A Director's exemption was issued to Yanke Energy, Tamarack's consultant, for the temporary burning of scrap railway ties.
July 3, 2001	DEQ approves burning of scrap wood in the cogeneration boiler. Approximately 3,000 tons of scrap wood will be received from the Jaype Plywood facility in Pierce, Idaho.

4.5 Emissions Description

Emissions from the Tamarack Mills facility consist mainly of combustion products (CO, NO_x, and SO_2) from the wood residue boiler and particulate emissions from the handling and processing of logs.

5. REGULATORY ANALYSIS

5.1. Facility-Wide Applicable Requirements

5.1.1 Rules for the Control of Fugitive Dust - IDAPA 58.01.01.650-651

5.1.1.1 Requirement

Permit Condition 1.1 states that all reasonable precautions shall be taken to prevent particulate matter from becoming airborne in accordance with IDAPA 58.01.01.650-651.

5.1.1.2 Compliance Demonstration

Permit Condition 1.2 states that the permittee is required to monitor and maintain records of the frequency and the methods used by the facility to reasonably control fugitive emissions. IDAPA 58.01.01.651 gives some examples of ways to reasonably control fugitive emissions, which include using water or chemicals, applying dust suppressants, using control equipment, covering trucks, paving roads or parking areas, and removing materials from streets.

Permit Condition 1.3 requires that the permittee maintain a record of all fugitive dust complaints received. In addition, the permittee is required to take appropriate corrective action as expeditiously as practicable after receipt of a valid complaint. The permittee is also required to maintain records that include the date that each complaint was received and a description of the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

To ensure that the methods being used by the permittee reasonably control fugitive emissions whether or not a complaint is received, Permit Condition 1.4 requires that the permittee conduct periodic inspections of the facility. The permittee is required to inspect potential sources of fugitive emissions during daylight hours and under normal operating conditions. If the permittee determines that fugitive emissions are not being reasonably controlled the permittee shall take corrective action as expeditiously as practicable. The permittee is also required to maintain records of the results of each fugitive emission inspection.

Both Permit Conditions 1.3 and 1.4 require the permittee to take corrective action as expeditiously as practicable. In general, the Department believes that taking corrective action within 24 hours of receiving a valid complaint or determining that fugitive emissions are not being reasonably controlled meets the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

5.1.2 Rules for the Control of Odors - IDAPA 58.01.01.775-776

5.1.2.1 Requirement

Permit Condition 1.5 and IDAPA 58.01.01.776 state: *"No person shall allow, suffer, cause or permit the emission of odorous gases, liquids or solids to the atmosphere in such quantities as to cause air pollution."* This condition is currently considered federally enforceable until such time it is removed from the State Implementation Plan (SIP), at which time it will be a state-only enforceable requirement.

5.1.2.2 Compliance Demonstration

Permit Condition 1.6 requires the permittee to maintain records of all odor complaints received. If the complaint has merit, the permittee is required to take appropriate corrective action as expeditiously as practicable. The records are required to contain the date each complaint was received and a description of the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

Permit Condition 1.6 requires the permittee to take corrective action as expeditiously as practicable. In general, DEQ believes that taking corrective action within 24 hours of receiving a valid odor complaint meets the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

5.1.3 Visible Emissions - IDAPA 58.01.01.625

5.1.3.1 Requirement

IDAPA 58.01.01.625 and Permit Condition 1.7 state: *"No person shall discharge any air pollutant to the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than twenty percent (20%) opacity as determined . . ."* by IDAPA 58.01.01.625. This provision does not apply when the presence of uncombined water, NO_x, and/or chlorine gas are the only reason(s) for the failure of the emission to comply with the requirements of this rule.

5.1.3.2 Compliance Demonstration

To ensure reasonable compliance with the visible emissions rule, Permit Condition 1.8 requires that the permittee conduct routine visible emissions inspections of the facility. The permittee is required to inspect potential sources of visible emissions, during daylight hours and under normal operating conditions. The visible emissions inspection consists of a see/no see evaluation for each potential source of visible emissions. If any visible emissions are present from any point of emission covered by this section, the permittee must either take appropriate corrective action as expeditiously as practicable, or perform a Method 9 opacity test in accordance with the procedures outlined in IDAPA 58.01.01.625. A minimum of 30 observations shall be recorded when conducting the opacity test. If opacity is determined to be greater than 20% for a period or periods aggregating more than three minutes in any 60-minute period, the permittee must take corrective action and report the exceedence in its annual compliance certification and in accordance with the excess emissions rules in IDAPA 58.01.01.130-136. The permittee is also required to maintain records of the results of each visible emissions inspection and each opacity test when conducted. These records must include the date of each inspection, a description of the permittee's assessment of the conditions existing at the time visible emissions are present, any corrective action taken in response to the visible emissions, and the date corrective action was taken.

It should be noted that if a specific emissions unit has a specific compliance demonstration method for visible emissions that differs from Permit Condition 1.8, then the specific compliance demonstration method overrides the requirement of Permit Condition 1.8. Permit Condition 1.8 is intended for small sources that would generally not have any visible emissions.

Permit Condition 1.8 requires the permittee to take corrective action as expeditiously as practicable. In general, DEQ believes that taking corrective action within 24 hours of discovering visible emissions meets the intent of this requirement. However, it is understood that, depending on the circumstances, immediate action or a longer time period may be necessary.

5.1.4. Excess Emissions

5.1.4.1 Requirement

Permit Condition 1.9 requires that the permittee comply with the requirements of IDAPA 58.01.01.130-136 for startup, shutdown, scheduled maintenance, safety measures, upset, and breakdowns. This section is fairly self-explanatory and no additional detail is necessary in this technical analysis. However, it should be noted that subsections 133.02, 133.03, 134.04, and 134.05 are not specifically included in the permit as applicable requirements. These provisions of the *Rules* only apply if the permittee anticipates requesting consideration under subsection 131.02 of the *Rules* to allow DEQ to determine if an enforcement action to impose penalties is warranted. Section 131.01 states "*. . . The owner or operator of a facility or emissions unit generating excess emissions shall comply with Sections 131, 132, 133.01, 134.01, 134.02, 134.03, 135, and 136, as applicable. If the owner or operator anticipates requesting consideration under Subsection 131.02, then the owner or operator shall also comply with the applicable provisions of Subsections 133.02, 133.03, 134.04, and 134.05.*" Failure to prepare or file procedures pursuant to Sections 133.02 and 134.04 is not a violation of the *Rules* in and of itself, as stated in subsections 133.03.a and 134.06.b. Therefore, since the permittee has the option to follow the procedures in Subsections 133.02, 133.03, 134.04, and 134.05; and is not compelled to, the subsections are not considered applicable requirements for the purpose of this permit and are not included as such.

Tamarack Mills did submit an excess emissions procedure in the Tier I application for the startup and shutdown of the wood-fired boiler. The procedures are contained in Table 9.2 of the application.

5.1.4.2 Compliance Demonstration

The compliance demonstration is contained within the text of Permit Condition 1.9. No further clarification is necessary here.

5.1.5 Reports and Certifications

All periodic reports and certifications required by this permit shall be submitted within 60 days of the end of each specified reporting period to the appropriate DEQ and EPA regional office.

5.1.6 Monitoring and Recordkeeping

The permittee is required to maintain recorded data in an appropriate location for a period of at least five years from the date which the data was generated. Though specific applicable requirements may have shorter record retention times, this requirement requires the permittee to maintain recorded data for a period that will satisfy the shorter minimum record retention times.

5.1.7 Rules for the Control of Open Burning

All open burning shall be done in accordance with IDAPA 58.01.01.600-616.

5.1.8 Renovation/Demolition – 40 CFR Part 61, Subpart M - Asbestos

The permittee shall comply with all applicable portions of 40 CFR 61, Subpart M when conducting any renovation or demolition activities at the facility.

5.1.9 Chemical Accident Prevention Provisions – 40 CFR Part 68

This facility is not currently subject to the requirements of 40 CFR 68. However, should the facility ever become subject to the requirements of 40 CFR 68, it must comply with the provisions contained in 40 CFR 68 by the time listed below.

Any facility that has more than a threshold quantity of regulated substance in a process, as determined under 40 CFR 68.115, must comply with the requirements of the Chemical Accident Prevention Provisions at 40 CFR 68 no later than the latest of the following dates:

- Three years after the date on which a regulated substance present above a threshold quantity is first listed under 40 CFR 68.130.
- The date on which a regulated substance is first present above a threshold quantity in a process.

5.1.10 Test Methods

The test method(s) for each emission limit is listed in the permit in accordance with the EPA's comments as follow below If this permit requires any testing, it shall be conducted in accordance with the procedures in IDAPA 58.01.01.157.

Test methods and averaging times: The specific reference test method and averaging times for each emission limit must be identified in the permit. A reference test method must be identified even if the permit imposes no source-testing requirement. Please note that, although we are aware that the state rules have recently been revised to include averaging items and test methods for most emission limits, the revised version of the *Rules* will not have been approved into the SIP at the time of issuance of the initial Tier I operating permits.

5.1.10.1 Opacity

The opacity shall be determined by procedures contained in IDAPA 58.01.01.625, 4/23/99. For sources affected by New Source Performance Standards (NSPS), EPA Reference Method 9 should be used.

5.1.10.2 PM/PM_{10}

Environmental Protection Agency Reference Method 5, or a Department-approved testing method, shall be used to test particulate matter (PM)/PM_{10} emissions. The averaging time comes from EPA Reference Method 5.

5.1.10.3 CO

Environmental Protection Agency Reference Method 10, or a Department-approved testing method, shall be used to test CO emissions. The averaging time comes from EPA Reference Method 10.

5.1.10.4 SO_2, NO_x, and VOC

Environmental Protection Agency Reference Method 6, or a Department-approved testing method, shall be used to test SO_2 emissions. EPA Reference Method 7, or a Department-approved testing method, shall be used to test NO_x emissions. EPA Reference Method 25, or a Department-approved testing method, shall be used to test VOC emissions. The averaging time for each pollutant comes from the corresponding EPA Reference Method.

5.1.10.5 Visible Emissions Inspection

The visible emissions inspection shall consist of a see/no see evaluation for each potential source of visible emissions. If any level of visible emissions are present from any point of emission the permittee shall either

take appropriate corrective action as expeditiously as practicable, or perform a Method 9 opacity test in accordance with the procedures outlined in IDAPA 58.01.01.625. A minimum of 30 observations shall be recorded when conducting the opacity test.

5.1.11 Permit Requirement– Distillate Fuel Oil– [IDAPA 58.01.01.728, 5/1/94] (Permit Condition 1.17)

5.1.11.1 Applicable Requirement

According to the permittee's application, distillate fuel oil is used at the facility for an emergency water pump.

5.1.11.2 Compliance Demonstration (Permit Condition 1.18)

The permittee shall maintain documentation of the supplier verification of distillate fuel oil sulfur content on an as-received basis. Maintaining documentation that shows all distillate fuel oil received contains no more than 0.3% sulfur by weight for grade 1 and 0.5% sulfur by weight for grade 2 demonstrates compliance with this standard.

5.1.12 Hazardous Air Pollutants (haps)

Tamarack Mills is a minor source of hazardous air pollutants (HAPs). The cooling towers emit approximately 120 pounds per year of hydrochloric acid. The gasoline and diesel fuel storage tanks emit less than 100 pounds per year of each of the following pollutants: benzene, lead, xylenes, ethyl benzene, toluene, and hexane.

5.1.13 Affected States Notice and Review

The state of Oregon is within 50 miles of the facility. Oregon is an "affected state" as defined by IDAPA 58.01.01.008.02. Affected states will receive a copy of the public comment package as required by IDAPA 58.01.01.364.02, and are provided the opportunity to comment on the draft Tier I operating permit as provided by 40 CFR 70.

5.1.14 40 CFR 60, 61, and 63

No standards in 40 CFR Parts 60, 61, and 63 are applicable to emission units at the Tamarack Mills facility. 40 CFR 60 Subpart Db, "Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units," is not applicable to the cogeneration unit because the cogeneration unit was constructed in 1983, prior to the applicability date of June 19, 1984. 40 CFR 63 Subpart Q, "National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers," does not apply to the cooling towers at the Tamarack Mills facility because Tamarack Mills is not a major source of HAP emissions and does not use chromium-based water treatment chemicals in the cooling towers.

5.2 REGULATORY ANALYSIS – EMISSIONS UNITS

5.2.1 Tamarack Energy Partnership Cogeneration Unit

5.2.1.1 Process Description

The Tamarack Energy Partnership cogeneration unit produces electricity from a steam-powered turbine. Steam is produced in a wood waste-fired boiler capable of producing 72,000 pounds of steam per hour. A multiclone and wet scrubber control emissions from the boiler. Some of the steam is piped across Highway 95 to provide heat for the lumber drying kilns. Ash collected from the boiler, multiclone, and scrubber is landfilled onsite. Energy removed from the steam in the condenser is exhausted to the atmosphere through a cooling tower.

Equipment Description

Wood-waste-fired boiler:

Manufacturer:	Yanke Energy (Riley on nameplate)
Model:	CG-1
Steam Rate:	72,000 pounds per hour

The boiler is a Riley Stoker Boiler SN-2772 that was manufactured in 1951. In 1983, Yanke Energy remanufactured the boiler as model CG-1. The application states the boiler heat input capacity is 102 million British thermal units (MMBtu) per hour. According to AP-42, Appendix A, one pound steam per hour is approximately equal to 1,400 British thermal units per hour. Therefore, the calculated boiler heat input capacity is approximately 100.8 MMBtu per hour, which closely agrees with the application.

Turbine generator:

Electricity Production:	5 megawatt

Cooling tower:

Water flowrate:	6,500 gallons per minute

5.2.1.2 Control Description

Equipment Description

Multiclone:

Manufacturer:	Joy Manufacturing
Model:	9-inch Joy
Pressure Drop:	3 inches of water

Wet scrubber:

Manufacturer:	Yanke Energy
Model:	CG-1 W.S.
Pressure Drop:	5 inches of water
Scrubber water flowrate:	40 gallons per minute

5.2.1.3 Stack Parameters

Wet scrubber:

Height:	75 feet
Exit Diameter:	7.25 feet
Exit Gas Flowrate:	42,600 actual cubic feet per minute
Exit Gas Temperature	153°F

Cooling tower (2 stacks):

Height:	30 feet
Exit Diameter:	16 feet (each)
Exit Gas Flowrate:	18,000 actual cubic feet per minute
Exit Gas Temperature	85°F

5.2.2 Permit Limits / Standard Summary – Process Weight (Permit Condition 2.1)

The permittee shall not discharge to the atmosphere from any fuel-burning equipment particulate matter in excess of 0.080 grains per dry standard cubic foot (gr/dscf) of effluent gas corrected to 8% oxygen by

volume when fueled by wood products. The boiler is subject to the standards for new sources because it was constructed after October 1, 1979.

5.2.2.1 Monitoring & Recordkeeping Requirements

The September 30, 1982, permit requires Tamarack Mills to monitor and record the following parameters:

- Daily feed rates
- Daily flue gas volumetric flow (combustion air)
- Daily energy production
- Other maintenance/operational variables as recommended by the manufacturer

In addition to monitoring these parameters, DEQ is requiring Tamarack Mills to perform emissions testing for PM to demonstrate compliance with the PM standard. In Table 10.1 of the application, Tamarack Mills proposed daily monitoring and recordkeeping of the scrubber pressure drop and steam production.

5.2.2.2 Reporting

The intent to test and results of the Method 5 particulate test shall be sent to DEQ in accordance with Permit Condition 1.16. The permittee must submit reports of all required monitoring data at least every six months in accordance with General Provision 7.24.

5.2.3 Permit Limits / Standard Summary – Visible Emissions (Permit Condition 2.2)

No person shall discharge any air pollutant to the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20% opacity as determined by procedures contained in IDAPA 58.01.01.625.

5.2.3.1 Monitoring & Recordkeeping Requirements

In Table 10.1 of the application, Tamarack Mills proposed annual opacity tests to demonstrate compliance with the standard. This requirement was included in the permit in addition to monthly visible emissions monitoring required in Permit Condition 1.8.

5.2.3.2 Reporting

The permittee shall maintain records of the results of each annual opacity test.

5.3 PLANER OPERATION

5.3.1 Emission Unit / Source Identification

5.3.1.1 Process Description

Dried lumber is sent to the planer where it is surfaced. Shavings from the planer operation are picked up by a negative air system at the planer and transported via low-pressure pneumatic line to a cyclone.

5.3.1.2 Control Description

Approximately 1.6 tons per hour of planer shavings are controlled by the shavings cyclone.

5.3.1.3 Stack Parameters

Height:	30 feet
Exit Diameter:	1.33 feet
Exit Gas Flowrate:	4,200 actual cubic feet per minute
Exit Gas Temperature	60°F

5.3.2 Permit Limits / Standard Summary – Process Weight (Permit Condition 3.1)

No person shall emit to the atmosphere from any process or process equipment commencing operation on or after October 1, 1979, particulate matter in excess of the amount shown by the following equations, where E is the allowable emission from the entire source in pounds per hour, and PW is the process weight in pounds of shavings per hour through the cyclone.

If PW is less than 9,250 lb/hr, $E = 0.045 (PW)^{0.6}$

If PW is equal to or greater than 9,250 lb/hr, $E = 1.10 (PW)^{0.25}$

The planer/cyclone process was installed or last modified in 1983. Therefore, the new equipment process weight limitation is applicable to the operation. The planer is enclosed within a building so no compliance demonstration is required for that unit. This requirement is applicable to the cyclone operation.

5.3.2.3 Monitoring & Recordkeeping Requirements

A Method 5 particulate test is required to demonstrate compliance with the process weight rate standard. This is required because of relatively high emissions visibly observed during the 2001 inspection. The permittee must maintain the results of the emissions test onsite. In Table 10.4 of the application, the permittee proposed periodic monitoring of throughput. The hourly throughput will be determined from a monthly average.

5.3.2.4 Reporting

The intent to test and results of the Method 5 particulate test shall be sent to DEQ in accordance with Permit Condition 1.16. The permittee must submit reports of all required monitoring data at least every six months in accordance with General Provision 24.

5.3.3 Permit Limits / Standard Summary – Visible Emissions (Permit Condition 2.2)

No person shall discharge any air pollutant to the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20% opacity as determined by procedures contained in IDAPA 58.01.01.625.

5.3.3.1 Monitoring & Recordkeeping Requirements

In Table 10.4 of the application, Tamarack Mills proposed annual opacity tests to demonstrate compliance with the standard. This requirement was included in the permit in addition to monthly visible emissions monitoring required in Permit Condition 1.8.

5.3.3.2 Reporting

The permittee must submit reports of all required monitoring data at least every six months in accordance with General Provision 24.

5.4 LUMBER-DRYING KILNS

5.4.1 Emission Unit / Source Identification

5.4.1.1 Process Description

A total of 48 million board feet per year of lumber is dried in three kilns. Each kiln is 108 feet long, 42 feet wide, and 30 feet high. Lumber packages are placed on kiln carts by forklifts and placed in the drying kilns. The drying kilns remove most of the moisture from the lumber and produce a dimensionally stable lumber product. The heat source for the drying kilns is steam produced in the cogeneration plant. Steam is

circulated through heating coils and air is heated by passing along the outside of the heating coils. The air is heated by the steam and passes through the stacks of lumber, warming the lumber and driving off the moisture. Atmospheric vents in the kiln roof are opened and closed to control the humidity in the kiln and exhaust the water driven from the lumber.

5.4.1.2 Control Description

Emissions from the lumber drying kilns are vented uncontrolled from the kiln buildings.

5.4.1.3 Stack Parameters

Height:	30 feet
Exit Diameter:	1.5 feet
Exit Gas Flowrate:	2,500 actual cubic feet per minute
Exit Gas Temperature	160°F
Stack Type:	vertical covered

5.4.2 Standard Summary / Process Weight (Permit Condition 4.1)

No person shall emit to the atmosphere from any process or process equipment commencing operation on or after October 1, 1979, particulate matter in excess of the amount shown by the following equations, where E is the allowable emission from the entire source in pounds per hour, and PW is the process weight in pounds per hour.

If PW is less than 9,250 lb/hr, $E = 0.045(PW)^{0.6}$

If PW is equal to or greater than 9,250 lb/hr, $E = 1.10(PW)^{0.25}$

The lumber drying process was installed or last modified in 1983. Therefore, the new equipment process weight limitations are applicable to the lumber drying kilns.

5.4.2.3 Compliance Demonstration

The permittee used DEQ emission factors to estimate particulate emissions from the lumber drying kilns. Emissions estimate spreadsheets are included in the appendix. According to the emission estimates, the process weight standard will never be violated. Therefore, no monitoring or recordkeeping is required to demonstrate compliance with the standard.

5.5 SAWMILL

5.5.1 Emission Unit / Source Identification

5.5.1.1 Process Description

The sawmill processes logs into rough lumber. Logs are transported from the log storage piles by loader to the infeed of the sawmill at the de-barker. Bark is removed from the logs by ring de-barkers, transferred by chain to a hammer hog, and pneumatically conveyed to either an open storage pile or the cogeneration plant fuel building.

Chipping saws and band saws in the head rig process the log into lumber and cants. Cants are cut into rough lumber by the edger saws. Sawdust falls to the vibrating waste conveyor below the saws. The vibrating waste conveyor includes a screening section that separates the sawdust from edgings. Sawdust is delivered to a pneumatic conveyance system through a rotary feeder seal valve and transported to either the fuel house or open pile storage. A target box disengages sawdust delivered to the fuel house from the air stream. Sawdust delivered to the open pile is discharged through the blowpipe. The sawmill produces approximately 22,500 tons of sawdust per year.

Edgings are conveyed to a chipper. Chips from the chipping saw and the chipper are conveyed to a truck loadout by a high-pressure pneumatic system. The facility produces approximately 22,000 tons of wood chips per year.

5.5.1.2 Control Description

The de-barkers are open to the atmosphere. Saws are controlled by enclosure. The screening operation is controlled by a cyclone.

5.5.2 Standard Summary / Process Weight (Permit Condition 5.1)

No person shall emit to the atmosphere from any process or process equipment commencing operation on or after October 1, 1979, particulate matter in excess of the amount shown by the following equations, where E is the allowable emission from the entire source in pounds per hour, and PW is the process weight in pounds per hour.
If PW is less than 9,250 lb/hr, $E = 0.045(PW)^{0.6}$

If PW is equal to or greater than 9,250 lb/hr, $E = 1.10(PW)^{0.25}$

The sawmill was installed or last modified in 1983. Therefore, the new equipment process weight limitations are applicable to the sawmill.

5.5.2.3 Compliance Demonstration

The permittee used AP-42 and Oregon DEQ emission factors to estimate particulate emissions from solid material storage and handling. Emissions estimate spreadsheets are included in the appendix. According to the emission estimates, the process weight standard will never be violated. Therefore, no monitoring or recordkeeping is required to demonstrate compliance with the standard.

6. COMPLIANCE PLAN AND COMPLIANCE CERTIFICATION

6.1 COMPLIANCE PLAN

Pursuant to the information submitted by Tamarack Mills, LLC in the June 21, 1995 Tier I operating permit (Tier I) application and as confirmed by an October 4, 2001 air quality inspection, Tamarack Mills, LLC has not obtained permits to construct (PTCs) for construction and/or modification of all emission sources at the facility in accordance with IDAPA 58.01.01.200 through 223. The following sources were specifically identified that were required to, but did not obtain, a PTC:

- **Log de-barkers** – emit PM and PM_{10}.
- **Sawmill** (bandsaws, twin saws, trim saws, cutoff saws, edgers, etc.) – emits PM and PM_{10} – controlled by cyclones.
- **Chipper/Hog** (reduces log ends and scrap wood to chips which are then sent to the boiler fuel pile or to a truck load-out bin for shipment to the Potlatch pulp & paper mill) – emits PM and PM_{10} – controlled by a cyclone.
- **Planer – emits PM and PM_{10}** – controlled by a cyclone.
- **Lumber Dry Kilns** – three kilns that use steam from the boiler for process heat – emit PM and PM_{10}.

- **Two cell cooling tower** – emits small amounts of methanol and hydrochloric acid (a.k.a. muriatic acid) in mist form (they are used as a biocide to control plant growth and algae in the process water stream).

- **Bark blow line and sawdust blow line** (pneumatic conveyance of wood fuel) and target box – emit PM and PM_{10}.

- **Chip load-out blow line** (pneumatic conveyance of wood chips to a truck load-out for shipment to the Potlatch pulp & paper mill) and target box – emit PM and PM_{10}.

- **Diesel-fired water pump for emergency firefighting use.**

In addition, the permittee has the continuing responsibility to submit any supplementary information needed, including information for any other sources, in accordance with IDAPA 58.01.01.315.

Because these sources have been constructed and/or modified without a permit, the Department has determined that the most appropriate course of action to bring the facility into compliance with the requirements is to issue a single facility-wide permit that:

(a) Specifically establishes the operating terms and conditions required by the PTC rules for sources for which a permit was required but not obtained; and

(b) Collectively addresses the operating terms and conditions required to demonstrate that emissions from all sources at the facility will not contribute to the violation of an applicable standard.

The Department is, therefore, requiring a combined Tier II operating permit (Tier II) and PTC (hereafter referred to as the facility-wide permit). The Tier II for Tamarack Mills, LLC is required in accordance with IDAPA 58.01.01.401.03 based on the determination that specific emission standards, or requirements on operation or maintenance are necessary to ensure compliance with any applicable emission standard or rule. The facility-wide permit will contain the terms and conditions necessary for the facility to comply with the applicable requirements of IDAPA 58.01.01.400 through 410.

The facility-wide permit will also include all of the terms and conditions for new or modified sources. For those sources within the facility that have existing PTCs, the terms and conditions will be incorporated into the new permit. For sources at the facility for which a PTC was required but not obtained, the permit will establish new emission limits, controls, and other requirements in accordance with the applicable portions of IDAPA 58.01.01.200 through 223. The new facility-wide permit will address all applicable emission standards, required emission control technology, and demonstrate that the facility will not cause or contribute to any ambient air quality standard or applicable prevention of significant deterioration (PSD) increment.

The combined Tier II and PTC is different than, and separate from, the Tier I in that the new permit will establish new applicable emission limits, controls, and other requirements that are as stringent as the requirements contained in or enforceable under the state implementation plan. This permit will create new underlying requirements for sources that are in existence at the time the initial Tier I is issued. A Tier I permit modification will, therefore, need to be issued concurrently with the issuance of the new facility-wide permit.

The applicable requirements established in the facility-wide permit pursuant to IDAPA 58.01.01.200 through 223 shall be clearly identified as such in the permit and shall remain in full force and effect until such time as they are modified or terminated in accordance with the procedures for issuing a PTC.

The specific compliance schedule elements and milestones to achieve compliance are described below.

Permit Condition 6.2. The permittee will be required to submit a complete permit application with all supporting information and documentation for issuance of a facility-wide permit in accordance with IDAPA

58.01.01.400 through 410 no later than 180 days from the final issuance date of the Tier I. A facility-wide permit is required by the Department to establish the terms and conditions necessary to comply with an applicable rule or standard. The Department shall consider the emissions from all sources at the facility and the specific requirements for individual sources in preparing the facility-wide operating permit.

The permit application shall clearly identify all emissions units at the facility - listing currently permitted emissions units, exempted units for which the facility maintains exemption documentation, units constructed before and not modified since January 24, 1969, and units constructed and/or modified since January 24, 1969 without a permit or construction approval from the Department. Application information shall provide facility information and emissions data for all emissions units in accordance with IDAPA 58.01.01.402 and 403 and shall include a demonstration that the sources at the facility will not cause or significantly contribute to a violation of the NAAQS or of any applicable PSD increment.

The application submittal deadlines have been set to reasonably accommodate updating and organizing the emissions unit descriptions and emissions data, and conducting ambient air quality modeling for all sources. Applications that are deemed or remain incomplete beyond the 180-day milestone shall constitute a violation of this permit condition.

Permit Condition 6.3. In addition to the information submitted under Permit Condition 6.2, the permittee is required to submit all of the information necessary to address the applicable requirements for PTCs in accordance with IDAPA 58.01.01.200 through 223 for the construction and/or modification of sources for which the permittee was required but did not obtain a PTC. The information must include all information to address the additional permit requirements for new major facilities or major modifications where construction without enforceable limits may have triggered PSD or nonattainment new source review (NSR) requirements.

This data must be submitted with the complete permit application required under Permit Condition 6.2 in order to issue a single combined permit. The information is, therefore, due no later than 180 days from the final issuance date of the Tier I. Failure to include complete information for addressing the PTC requirements within the required timeframe shall constitute a violation of this permit condition.

Permit Condition 6.4. If through the development of the facility-wide permit, any other source or sources are identified that should have obtained a PTC or PTC modification and for which the applicant did not include the information under Permit Condition 6.3, a supplemental application that contains all of the information necessary to address the applicable requirements for PTCs in accordance with IDAPA 58.01.01.200 through 223 shall be submitted no later than 30 days after receiving written notification from the Department. Supplemental applications that are deemed or remain incomplete beyond the 30-day milestone shall constitute a violation of this permit condition.

Permit Condition 6.5. If the permittee can clearly demonstrate that the data required for the facility-wide permit cannot be collected and organized within the specified timeframe, the permit application submittal deadlines may be extended at the discretion of the Department for a specific time period not to exceed one year. For the Department to consider a request for an extension without jeopardizing the terms and conditions of the permit, the request must be submitted by the facility no later than the midpoint of the compliance milestone timeline. The request must be submitted in writing with a clear demonstration why the data cannot reasonably be submitted within the specified timeframe. An example of information that might justify an extension is the absence of ambient monitoring data required to complete a PSD application.

The Department will review the request and the justification and approve or disapprove the extension in writing. The responsibility for meeting the schedule if the Department has not issued a written extension belongs to the permittee.

Permit Condition 6.6. The Department intends to draft and issue a single facility-wide permit to bring the permittee back into compliance. This permit will fully meet all of the applicable requirements in the *Rules* and the federally approved state implementation plan. Because the permit will contain both elements of PTCs and of Tier II permits, it will clearly identify the origin and basis for each term and condition. The terms and conditions established pursuant to the PTC requirements shall be clearly marked and shall not expire

with any Tier II operating permit term. The terms and conditions established pursuant to the Tier II requirements shall be clearly marked and shall be implemented in accordance with the Tier II process. The procedures for issuing a PTC in IDAPA 58.01.01.209 shall be followed concurrently with the procedures for issuing a Tier II in IDAPA 58.01.01.404. The permit shall clearly state that any future modification of a term or condition in the permit shall be subject to the appropriate procedural requirements on which the original term or condition was based.

Permit Condition 6.7. Within 30 days after the Department determines the facility-wide permit application complete, the permittee will need to request a significant permit modification to the Tier I in accordance with IDAPA 58.01.01.382.02. A significant Tier I modification will require the payment of fees in accordance with IDAPA 58.01.01.389.06.b.iii. Because the information in a complete application as required under Permit Condition 6.2 and 6.3 should contain all of the technical information necessary to modify the Tier I, the Department may waive portions of the standard application requirements as appropriate provided the permittee certifies the completeness, truth, and accuracy of all documents submitted.

The Tier I modification shall be processed concurrently with the facility-wide permit in accordance with the procedures for issuing a Tier I in IDAPA 58.01.01.360 through 369.

Permit Condition 6.8. The permittee shall be required to submit a progress report at the end of each calendar quarter (January 1, April 1, July 1, and October 1) of each year stating when each of the conditions of each milestone were or will be achieved. A detailed explanation is required when milestones were not or will not be achieved in accordance with the schedule.

Permit Condition 6.9. The incorporation of the compliance schedule into the Tier I operating permit does not sanction noncompliance with the applicable rules.

7. INSIGNIFICANT ACTIVITIES

Listed below are the insignificant activities and emission units described by the source in accordance with IDAPA 58.01.01.317.01(b).

Table 7.1 Insignificant Activities

Emission Unit	Description	Insignificant Activities IDAPA 58.01.01.317.01(b)(i) Citation
	Noncontact cooling towers <10,000 gpm	13
7-1	Log de-barkers	30
7-2	De-barker conveyor drop	30
7-3	Log yard loader drop	30
7-4	Log yard conveyor drop	30
7-6	Truck to fuel pile	30
7-7	Fuel pile loader reclaim	30
7-8	Fuel pile loader drop	30
7-9	Reclaim conveyor drop	30
7-11	Mill waste conveyor drop	30
7-14	Trim and sawdust conveyor	30
7-15	Shavings blowline to pile	30
7-17	Fuel storage pile	30
7-18	Bottom ash to landfill	30
7-19	Fly ash to landfill	30
7-21	Reclaimer conveyor drop	30
	Stacking and Sorting	30

7.1 There are no monitoring, recordkeeping, or reporting requirements for insignificant emission units or activities beyond those required in the facility-wide conditions section of the permit.

8. ALTERNATIVE OPERATING SCENARIOS

The permittee did not request any alternative operating scenarios.

9. TRADING SCENARIOS

The permittee did not request any trading scenarios.

10. ACID RAIN PERMIT

Tamarack is not subject to the acid rain permitting requirements of 40 CFR 72 through 75. The applicability determination is contained in 40 CFR 72.6(a) and states, "*Each of the following units shall be an affected unit, and any source that includes such a unit shall be an affected source, subject to the requirements of the Acid Rain Program.*" The following definitions of "unit" and "fossil fuel" from 40 CFR 72.2 were used to determine that Tamarack's wood-fired boiler is not subject to the Acid Rain Program:

- "Unit" means a fossil fuel-fired combustion device.
- "Fossil fuel" means natural gas, petroleum, coal, or any form of solid, liquid, or gaseous fuel derived from such material.

11. AIRS DATABASE

AIRS/AFS FACILITY-WIDE CLASSIFICATION DATA ENTRY FORM

AIR PROGRAM / POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	TITLE	AREA CLASSIFICATION A – Attainment U – Unclassifiable N - Nonattainment
SO_2							U
NOx	A					A	U
CO	A	A				A	U
PM_{10}							U
PM (Particulate)							U
VOC							
Hydrogen Chloride							
Methanol							
Benzene							
Lead							
Xylenes							
Ethyl Benzene							
Toluene							
Hexane							
THAP (Total HAPs)							
			APPLICABLE SUBPART				

AIRS/AFS CLASSIFICATION CODES:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 ton-per-year (T/yr) threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.

SM = Potential emissions fall below applicable major source thresholds **if and only if** the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

12. REGISTRATION FEES

Tamarack is a major facility as defined by IDAPA 58.01.01.008.10, and is therefore subject to registration and registration fees in accordance with IDAPA 58.01.01.387.

13. RECOMMENDATION

Based on the Tier I application and review of the federal regulations and state rules, staff recommends DEQ issue a proposed Tier I operating permit No. 003-00001 to EPA review for their 45-day review as required by IDAPA 58.01.01.366.

Appendix

Emission Estimates

9506-100-1
Tamarack Mills, LLC, New Meadows

EVERGREEN FOREST PRODUCTS & TAMARACK ENERGY PARTNERSHIP

SOLID MATERIAL STORAGE AND HANDLING EMISSIONS ESTIMATE

S.SCHULTZ MAY 1995

SOURCES OF MATERIAL STORAGE AND HANDLING EMISSIONS

SOURCE		EMISSION FACTOR #/TON	REF.	NORMAL MAT. TONS/YR	MAXIMUM MAT. TONS/YR	OPERATION HOURS/YR	NORMAL EMISSION #/HR	MAXIMUM EMISSION #/HR	NORMAL EMISSION TON/YR	MAXIMUM EMISSION TON/YR
(7-1)	LOG DEBARKING	0.024	DEQ	160000	200000	4160	0.9231	1.1538	1.92E+00	2.40E+00
(7-2)	DEBARKER CONVEYOR DROP	1.93E-05	EPA AP-42	32000	40000	4160	0.0001	0.0002	3.09E-04	3.87E-04
(7-3)	LOG YARD CLEANING LOADER	1.76E-04	EPA AP-42	5000	6250	1000	0.0009	0.0011	4.40E-04	5.49E-04
(7-4)	LOG YARD CONVEYOR DROP	1.93E-05	EPA AP-42	5000	6250	1000	0.0001	0.0001	4.84E-05	6.04E-05
(7-5)	BLOW LINE TO PILE	1	ORE. DEQ	8000	10000	4160	1.9231	2.4038	4.00E+00	5.00E+00
(7-6)	TRUCK TO PILE	7.03E-05	EPA AP-42	23952	25000	2000	0.0008	0.0009	8.42E-04	8.79E-04
(7-7)	PILE RECLAIM	7.03E-05	EPA AP-42	40000	44000	2000	0.0014	0.0015	1.41E-03	1.55E-03
(7-8)	RECLAIM HOPPER LOADING	7.03E-05	EPA AP-42	40000	44000	2000	0.0014	0.0015	1.41E-03	1.55E-03
(7-9)	RECLAIM CONVEYOR DROP	1.93E-05	EPA AP-42	40000	44000	2000	0.0004	0.0004	3.87E-04	4.26E-04
(7-10)	MILL WASTE CONVEYOR	0.035	DEQ	128000	160000	4160	1.0769	1.3462	2.24E+00	2.80E+00
(7-11)	MILL WASTE CONVEYOR DROP	4.84E-05	EPA AP-42	22534	28167.5	4160	0.0003	0.0003	5.45E-04	6.81E-04
(7-12)	SAW DUST TO PILE	1	ORE. DEQ	5048	6310	4160	1.2135	1.5168	2.52E+00	3.16E+00
(7-13)	SHAVINGS CYCLONE G/SDCF	0.03	DEQ	6500	8125	4160	1.0700	1.3375	9.75E-02	1.22E-01 ← 2.7P
(7-14)	TRIM & SAW DUST CONVEYOR	2.01E-04	EPA AP-42	1660	2075	4160	0.0001	0.0001	1.67E-04	2.09E-04
(7-15)	SHAVINGS BLOW LINE TO PILE	1	ORE. DEQ	3000	3750	4160	0.7212	0.9014	1.50E+00	1.88E+00
(7-16)	CHIPS TO RAIL LOADING	1	ORE. DEQ	22000	27500	4160	5.2885	6.6106	1.10E+01	1.38E+01
(7-17)	FUEL PILE STORAGE	6.08E-06	EPA AP-42	40000	44000	8760	0.0000	0.0000	1.22E-04	1.34E-04
(7-18)	BOTTOM ASH TO LAND FILL	1.76E-03	EPA AP-42	735	808.5	2000	0.0006	0.0007	6.46E-04	7.11E-04
(7-19)	FLY ASH TO LAND FILL	3.52E-03	EPA AP-42	626	688.6	2000	0.0011	0.0012	1.10E-03	1.21E-03
(7-20)	ASH PILE STORAGE	5.07E-05	EPA AP-42	12000	13200	8760	0.0001	0.0001	3.04E-04	3.34E-04
(7-21)	RECLAIMER CONVEYOR DROP	1.93E-05	EPA AP-42	91646	100810.6	8520	0.0002	0.0002	8.86E-04	9.75E-04
						TOTALS	12.22	15.28	23.29	29.11

GENERAL EMISSION FACTOR EQUASIONS

LOADER AND TRUCK DROPS

E=.0018*P*k*(S/5)*(U/5)*(H/5)/((M/2)*2*(Y/6)*.33)

E= PARTICULATE EMISSIONS #/HR

P= MATERIAL CARRIED TONS/HR

	WOOD	ASH	CLINKER
k	4.56	0.313	0.367

k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	0.73	0.73
S= % SILT OR FINE PARTICULATE	10.00%	75.00%	25.00%
U= MEAN WIND SPEED MPH	4.6	4.6	4.6
H= DROP HEIGHT	4	4	4
M= MOISTURE CONTENT %	50.00%	15.00%	10.00%
Y= DUMPING CAPACITY YDS.	10	5	5

CONVEYOR TRANSFER AND DROP

E=.0018*P*k*(S/5)*(U/5)*(H/10)/((M/2)*2)	WOOD	
E= PARTICULATE EMISSIONS #/HR		
P= MATERIAL CARRIED TONS/HR		
k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
S= % SILT OR FINE PARTICULATE	10.00%	
U= MEAN WIND SPEED MPH	4.6	
H= DROP HEIGHT	4	
M= MOISTURE CONTENT %	50.00%	

OPEN STORAGE PILES

E= 1.7*(S/1.5)*((365-p)/235)*(f/15)*A/24	WOOD	ASH/CLINKER
E= PARTICULATE EMISSIONS #/HOUR		
S= % SILT OR FINE PARTICULATE	10.00%	50.00%
p= NUMBER OF DAYS PER YEAR WITH >.01 IN PRECIP.	85	85
f= % OF TIME WIND EXCEEDS 12 MPH	7.40%	7.40%
A= AREA OF PILE (ACRE)	1	0.5

(7-2) DEBARKER CONVEYOR DROP

CONVEYOR TRANSFER AND DROP

E=.0018*P*k*(S/5)*(U/5)*(H/10)/((M/2)*2)	WOOD	
E= PARTICULATE EMISSIONS #/HR	0.000149	
P= MATERIAL CARRIED TONS/HR	7.692308	TON/HR
k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
S= % SILT OR FINE PARTICULATE	10.00%	
U= MEAN WIND SPEED MPH	4.6	
H= DROP HEIGHT	4	
M= MOISTURE CONTENT %	50.00%	
EMISSION FACTOR	1.93E-05	#/TON

(7-3)	LOG YARD CLEANING		
	LOADER AND TRUCK DROPS		
	E=.0018*P*k*(S/5)*(U/5)*(H/5)/((M/2)*2*(Y/6)*.33)	WOOD	
	E= PARTICULATE EMISSIONS #/HR	0.000879	
	P= MATERIAL CARRIED TONS/HR	5	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE	25.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	50.00%	
	Y= DUMPING CAPACITY YDS.	10	
	EMISSION FACTOR	0.000176	#/TON
(7-4)	LOG YARD CONVEYOR DROP		
	CONVEYOR TRANSFER AND DROP		
	E=.0018*P*k*(S/5)*(U/5)*(H/10)/((M/2)*2)	WOOD	
	E= PARTICULATE EMISSIONS #/HR	9.67E-05	
	P= MATERIAL CARRIED TONS/HR	5	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE	10.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	50.00%	
	EMISSION FACTOR	1.93E-05	#/TON
(7-6)	TRUCK TO PILE		
	LOADER AND TRUCK DROPS		
	E=.0018*P*k*(S/5)*(U/5)*(H/5)/((M/2)*2*(Y/6)*.33)	WOOD	
	E= PARTICULATE EMISSIONS #/HR	0.000842	
	P= MATERIAL CARRIED TONS/HR	11.976	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE	10.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	50.00%	
	Y= DUMPING CAPACITY YDS.	10	
	EMISSION FACTOR	7.03E-05	#/TON

(7-7)	PILE RECLAIM		
(7-8)	LOADER AND TRUCK DROPS		
	E=.0018*P*k*(S/5)*(U/5)*(H/5)/((M/2)*2*(Y/6)*.33)	WOOD	
	E= PARTICULATE EMISSIONS #/HR	0.001407	
	P= MATERIAL CARRIED TONS/HR	20	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE	10.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	50.00%	
	Y= DUMPING CAPACITY YDS.	10	
	EMISSION FACTOR	7.03E-05	#/TON
(7-9)	RECLAIM CONVEYOR DROP		
	CONVEYOR TRANSFER AND DROP		
	E=.0018*P*k*(S/5)*(U/5)*(H/10)/((M/2)*2)	WOOD	
	E= PARTICULATE EMISSIONS #/HR	0.000387	
	P= MATERIAL CARRIED TONS/HR	20	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE	10.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	50.00%	
	EMISSION FACTOR	1.93E-05	#/TON
(7-11)	MILL WASTE CONVEYOR DROP		
	CONVEYOR TRANSFER AND DROP		
	E=.0018*P*k*(S/5)*(U/5)*(H/10)/((M/2)*2)	WOOD	
	E= PARTICULATE EMISSIONS #/HR	0.000262	
	P= MATERIAL CARRIED TONS/HR	5.416827	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE SAWDUST	25.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	50.00%	
	EMISSION FACTOR	4.84E-05	#/TON

(7-14)	TRIM & SAW DUST CONVEYOR DROP		
	CONVEYOR TRANSFER AND DROP		
	E=.0018*P*k*(S/5)*(U/5)*(H/10)/((M/2)*2)	WOOD	
	E= PARTICULATE EMISSIONS #/HR	8.04E-05	
	P= MATERIAL CARRIED TONS/HR	0.399038	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE SAWDUST	25.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	12.00%	
	EMISSION FACTOR	0.000201	#/TON
(7-17)	FUEL PILE STORAGE		
	OPEN STORAGE PILES		
	E= 1.7*(S/1.5)*((365-p)/235)*(f/15)*A/24	WOOD	
	E= PARTICULATE EMISSIONS #/HOUR	2.78E-05	
	S= % SILT OR FINE PARTICULATE	10.00%	
	p= NUMBER OF DAYS PER YEAR WITH >.01 IN PRECIP.	85	
	f= % OF TIME WIND EXCEEDS 12 MPH	7.40%	
	A= AREA OF PILE (ACRE)	1	
	EMISSION FACTOR IN #/TON	6.08E-06	#/TON
(7-18)	BOTTOM ASH TO LAND FILL		
	LOADER AND TRUCK DROPS		
	E=.0018*P*k*(S/5)*(U/5)*(H/5)/((M/2)*2*(Y/6)*.33)	CLINKER	
	E= PARTICULATE EMISSIONS #/HR	0.000646	
	P= MATERIAL CARRIED TONS/HR	0.3675	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE	25.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	10.00%	
	Y= DUMPING CAPACITY YDS.	5	
	EMISSION FACTOR	0.001758	#/TON
(7-19)	FLY ASH TO LAND FILL		

	LOADER AND TRUCK DROPS		
	E=.0018*P*k*(S/5)*(U/5)*(H/5)/((M/2)*2*(Y/6)*.33)	ASH	
	E= PARTICULATE EMISSIONS #/HR	0.001101	
	P= MATERIAL CARRIED TONS/HR	0.313	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE	75.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	15.00%	
	Y= DUMPING CAPACITY YDS.	5	
	EMISSION FACTOR	0.003517	#/TON
(7-20)	ASH PILE STORAGE		
	OPEN STORAGE PILES		
	E= 1.7*(S/1.5)*((365-p)/235)*(f/15)*A/24	CLINKER/ASH	
	E= PARTICULATE EMISSIONS #/HOUR	6.94E-05	
	S= % SILT OR FINE PARTICULATE	50.00%	
	p= NUMBER OF DAYS PER YEAR WITH >.01 IN PRECIP.	85	
	f= % OF TIME WIND EXCEEDS 12 MPH	7.40%	
	A= AREA OF PILE (ACRE)	0.5	
	EMISSION FACTOR IN #/TON	5.07E-05	
(7-21)	RECLAIMER CONVEYOR DROP		
	CONVEYOR TRANSFER AND DROP		
	E=.0018*P*k*(S/5)*(U/5)*(H/10)/((M/2)*2)	WOOD	
	E= PARTICULATE EMISSIONS #/HR	0.000208	
	P= MATERIAL CARRIED TONS/HR	10.75657	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE SAWDUST	10.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	50.00%	
	EMISSION FACTOR	1.93E-05	#/TON